19th Avenue Landfill

Boundaries:

The 19th Avenue Landfill is located in an industrial area of Phoenix, at the southeast corner of 19th Avenue and Lower Buckeye Road. The site covers 213 acres of land, of which the major part containing 200 acres is referred to as Cell A, and located on the north side of the Salt River channel. The remainder of the landfill Cell A-1 is located south of the river channel.

Site History:

- The 19th Avenue Landfill originated as sand and gravel pits in 1957. The pits were later backfilled predominately with municipal refuse from the Phoenix area, and some solid and liquid industrial wastes. Liquid industrial wastes were poured into unlined pits which were dug into areas of Cell A, previously filled with refuse. Most of the liquid disposal pits were in the north-central portion of Cell A, and along the eastern boundary. Cell A-1 was mined for sand and gravel prior to 1971, and completely filled with refuse by late 1972.

- Parts of the landfill were covered with water by at least one flood event during 1965 and intermittently during the 1970's. Surface water runoff events in May 1978 washed refuse from the southwest part of Cell A and the northern third of Cell A-1. Cell A was refilled with refuse during the summer of 1978, and Cell A-1 was refilled with construction debris in 1979. River flows in the winter and spring of 1979 again washed out refuse in the southwestern part of Cell A.

- The landfill was closed by a cease and desist order issued by the Arizona Department of Health Services (ADHS) in February 1979. The City and ADHS entered into a consent agreement in June 1979. The consent order was amended in December 1979. To comply with the first amended consent order, the City covered the site with fill material, stockpiled soil for final capping, installed groundwater monitor wells, built berms around the boundary of the landfill, installed a methane gas collection system, and provided a 24-hour security guard until November 1996.

- The site was placed on the EPA National Priority List in September 1983. ADEQ was assigned oversight authority of the project in 1988.

- A remedial investigation/feasibility study (RI/FS) was voluntarily conducted by the City. The RI/FS was prepared according to the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA). The RI/FS report was submitted to ADEQ in June 1988.

- The City of Phoenix prepared a remedial action plan (RAP) under Arizona's Water Quality Assurance Revolving Fund (WQARF) rules. The RAP included options, ranging

from excavation of the entire landfill to a no action option. These options were categorized into the four objectives for the 19th Avenue Landfill: Refuse-Washout, Surface-Water Quality, Ground-Water Quality, and Landfill-Gas Accumulation. Four options were developed for the Refuse-Washout objective, two for Surface-Water Quality, two for Ground-Water Quality, and one for Landfill-Gas Accumulation. The options surviving the screening in the feasibility study were assembled into alternatives that addressed all objectives for the 19th Avenue Landfill. Four alternatives were selected for evaluation.

- ADEQ approved the final draft RAP along with the RI/FS for the 19th Avenue Landfill in a letter of determination (LOD) in September 1989. The LOD recorded approval of the preferred alternative A, with inclusion of a groundwater contingency plan (Appendix B of the RAP). The Record of Decision (ROD) by the EPA was dated September 29, 1989. This document served as the EPA's concurrence of the remedy selected by ADEQ for the 19th Avenue Landfill. The selected remedy was Alternative A in the RAP, as described in the LOD and the ROD.

- A consent decree (CD) between the State of Arizona and the City of Phoenix was signed by the United States District Court in June 1992 required capping of the landfill cells, removal and treatment of methane gas, monitoring of groundwater, flood control improvements and bank stabilization, and a contingency plan to treat groundwater if standards are exceeded. The CD provided legal assurance to the public that the approved remedy would be implemented as described in the LOD and the ROD.

- Remediation activities have been completed and this project is in the operations and maintenance phase.

- Quarterly groundwater monitoring, monthly methane monitoring, and inspections of the landfill cap, flood control structures and landscaping continue.

- A final engineering design of a system to enhance gas collection was approved by ADEQ during 2001, and construction was completed during 2002. The initial performance test was made and Maricopa County gave the City an Air Quality permit to operate the system during the fall of 2002.

- The19th Avenue Landfill is approaching readiness for delisting from the NPL. Therefore the following tasks have been identified as necessary prior to initiating the delisting process:
  (a) - Prepare an explanation of significant difference (ESD) in order to change the groundwater monitoring standards relative to the drinking water maximum contaminant levels (MCLs) which have undergone some changes since the ROD was written. A draft ESD was submitted to EPA in March 2003.
  (b) - Revise the Final Close-Out Report (FCOR) for regulatory review and approval.

Site Status:

- The City of Phoenix submitted the appropriate reports for quarterly monitoring of groundwater for specified constituents.

- ADEQ is continuing to work with EPA and the city of Phoenix in order to initiate delisting of the site from the National Priority List (NPL).

- The City of Phoenix has requested approval to discontinue quarterly groundwater monitoring for Vinyl Chloride as the most recent samples have been non-detect.

- An ESD has been drafted and sent to EPA for comment. EPA has provided comments to ADEQ and ADEQ is currently working to provide a final draft.

Site Hydrogeology:

- The 19th Avenue Landfill is situated in the southeastern portion of the west sub-basin of the Salt River Basin in central Arizona. The site is within the Basin and Range physiographic province. The landfill is sited on alluvial fill material that commonly occupies the structurally depressed basins of the region. No active faults are known to be present near the site.

- A monitor well installation program was implemented to characterize the shallow subsurface geology in the area near the landfill. This was accomplished by drilling 12 boreholes during the summer of 1987, four of which were drilled to a depth of 300 feet or greater. Data collected from the boreholes indicate that at least five identifiable stratigraphic subunits exist within approximately 400 feet of the surface. These stratigraphic subunits belong to the upper alluvial unit (UAU) with designated subunits S, A, B, C and the and middle alluvial unit (MAU).

- The natural groundwater flow direction beneath both cells of the landfill is to the northwest. This phenomena is controlled primarily by the pumping of large volume irrigation wells located northwest of the landfill site. Season fluctuations can occur, however, the pumping of irrigation wells along with the natural regional flow direction controls the groundwater flow beneath the landfill.

- Depth to groundwater ranges between 20 to 40 feet below ground surface (bgs) near the river, and 60 to 80 feet bgs north of the site. The current drought has resulted in lowering of the water table by 20 feet or more.

Contaminants:

The current contaminants of concern in groundwater include very low levels of volatile organic compounds (VOCs), heavy metals including arsenic, barium, mercury, and nickel, and beta radiation. Currently, the only compound that is above drinking water standards is 1,1-dichloroethene (1,1-DCE) which does not originate from the landfill. Contaminants of concern at the site may change as new data become available.

Sampling of soil and refuse in the landfill indicated that the contents of the landfill are similar to those expected in municipal landfills, however, industrial wastes were also disposed of at the site.

Public Health Impact:

The baseline risk/health assessment prepared by the Agency for Toxic Substances and Disease Registry (ATSDR) indicates that the groundwater flowing underneath the landfill is not considered to be a threat to public health. Groundwater in the area is used for industrial purposes only; it is not used as drinking water. Potential and future groundwater impacts will be mitigated by the groundwater contingency plan. Therefore, there will be no exposure pathway through any drinking water supplies. The area's primary drinking water is provided by the city of Phoenix water distribution system. The municipal system draws water from groundwater and surface water sources over thirty miles away. The nearest drinking water supply well is over three miles away. An industrial well and a down gradient agricultural well are located 200 feet and 800 feet, respectively, from the site. However, there is no known contamination of these wells at this time.

Ambient air quality monitoring indicate no apparent risk to human health from landfill gas emissions.

Community Involvement Activities:

No community involvement activities are planned at this time.

Information Repository:

Interested parties can review site information at the information repository located at the Burton Barr Central Library located at 1221 N. Central Avenue in Phoenix, (602) 262-4636. Site files are also located at the ADEQ main office located at 1110 West Washington Street, Phoenix. Site information at ADEQ is available for review Monday through Friday from 8 a.m. to 5 p.m. To arrange for a time to review the public site file, please call the ADEQ Records Center (602) 771-4378 or (800) 234-5677 (Arizona toll free).

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*In Arizona, but outside the Phoenix area, call toll-free at (800) 234-5677.
**Call EPA’s toll-free message line at (800) 231-3075.